

respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. The independent claims recite an underlying insulating film formed on a substrate; and a pixel circuit and a driving circuit formed on said underlying insulating film; wherein said underlying insulating film contains halogen. In other words, the independent claims recite an underlying insulating film containing halogen formed between a transistor and a substrate.

The Official Action concedes that Misawa, Higashi and Matloubian do not teach "said underlying insulating film containing halogen" (page 3, Paper No. 20050621). The Official Action relies on Mueller to allegedly teach "a field effect transistor wherein a silicon dioxide layer (underlying insulating film) is formed on a silicon substrate ... [and]

[t]he silicon dioxide film is impinged by AlCl_2 ions (halogen)" (Id.). The Official Action further asserts that "it would have been obvious to one of ordinary skill in the art at the time of invention to have said underlying insulating film contain halogen in order to make the semiconductor device radiation hardened to reduce damage" (Id.). That is, the Official Action appears to assert that it would have been obvious to add halogen to the insulator layer 220 in Figure 6c of Matloubian. The Applicants respectfully disagree and traverse the above-referenced assertions in the Official Action.

Mueller appears to teach that an oxide film containing halogen is formed on a surface of a silicon substrate in order to reduce undesired drifts of a threshold voltage of a transistor (column 4, lines 5-40). That is, the silicon dioxide layer of Mueller appears to function as a gate insulator of the transistor and not as an underlying insulating film between a substrate and a transistor.

In the present invention, an underlying layer is formed between a transistor and a substrate in order to effectively prevent alkali metal atoms from getting into a semiconductor film from the substrate (see, for example, the specification at page 27, lines 3-34).

Thus, the silicon dioxide layer of Mueller does not correspond to an underlying substrate. Therefore, Misawa, Higashi, Matloubian and Mueller, either alone or in combination, do not teach or suggest an underlying insulating film containing halogen formed between a transistor and a substrate.

Since Misawa, Higashi, Matloubian and Mueller do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Furthermore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Misawa, Higashi, Matloubian and Mueller or to combine reference teachings to achieve the claimed invention. MPEP § 2142 states that the examiner bears the initial

burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be used together or modified in the manner asserted in the Official Action, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the features of the present invention.

The test for obviousness is not whether the references "could have been" combined or modified as asserted in the Official Action, but rather whether the references should have been. As noted in MPEP § 2143.01, "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original). Thus, it is respectfully submitted that the standard set forth in the Official Action is improper to support a finding of *prima facie* obviousness.

As noted above, the Official Action appears to assert that it would have been obvious to halogen to the insulator layer 220 in Figure 6c of Matloubian. The Applicants respectfully disagree and traverse the above-referenced assertions in the Official Action. Also as noted above, the silicon dioxide layer of Mueller does not correspond to an underlying substrate. One of ordinary skill in the art at the time of the present invention would not have applied the teachings of Mueller, which relate to a gate insulator of a transistor (column 4, lines 5-40), to the insulator layer 220 in Figure 6c of Matloubian, which appears to be formed between substrate 212 and a transistor. In other words, there is no suggestion or motivation in the prior art that would have taught or suggested that it would have been obvious to apply a gate insulator to an insulator layer between a substrate and a transistor.

Also, it is not clear why one of ordinary skill in the art who was concerned with the alleged motivation, i.e. making a semiconductor device radiation hardened to reduce

damage (page 3, Paper No. 20050621) would not have simply practiced Mueller alone. It is unclear why it would have been desirable to combine Misawa, Higashi, Matloubian and Mueller at the time of the present invention. Therefore, the Official Action has not shown sufficient motivation in Misawa, Higashi and Matloubian or Mueller to teach or suggest that the references could or should be combined.

Therefore, the Applicants respectfully submit that the Official Action has not provided a proper suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Misawa, Higashi, Matloubian and Mueller or to combine reference teachings to achieve the claimed invention.

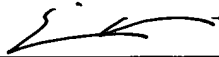
For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 4 of the Official Action rejects dependent claims 9, 18, 31, 44 and 57 as obvious based on the combination of Misawa, Higashi, Matloubian, Mueller and U.S. Patent No. 5,153,142 to Hsieh.

Please incorporate the arguments above with respect to the deficiencies in Misawa, Higashi, Matloubian and Mueller. Hsieh does not cure the deficiencies in Misawa, Higashi, Matloubian and Mueller. The Official Action relies on Hsieh to allegedly teach a pixel electrode connected to a thin film transistor via a conductive film (page 7, Paper No. 20050621). However, Misawa, Higashi, Matloubian, Mueller and Hsieh, either alone or in combination, do not teach or suggest an underlying insulating film containing halogen formed between a transistor and a substrate. Since Misawa, Higashi, Matloubian, Mueller and Hsieh do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
PMB 955
21010 Southbank Street
Potomac Falls, Virginia 20165
(571) 434-6789